

WHAT IS CLAIMED IS:

1. A system for displaying three-dimensional imagery, the system comprising:

an image source;

a first projector connected to said image source;

5 said first projector having a first light emission;

a second projector connected to said image source;

said second projector having a second light emission; and

a first twisted nematic liquid crystal rotator disposed in said first light emission.

2. The system of claim 1 wherein said first twisted nematic liquid crystal rotator is a 0° to 90° twisted nematic liquid crystal rotator.

3. The system of claim 2 wherein:

15 said first projector is an amorphous silicon thin film transistor liquid crystal display projector; and

said second projector is an amorphous silicon thin film transistor liquid crystal display projector.

4. The system of claim 3 further including:

20 a first touch up polarizer disposed in said first light emission at a position prior to said first light emission passing through said first twisted nematic liquid crystal rotator; and

a second touch up polarizer disposed in said second light emission.

5. The system of claim 3 wherein said first twisted nematic liquid crystal rotator is disposed in said first light emission externally to said first projector.

6. The system of claim 5 further including:

a first touch up polarizer disposed in said first light emission between
said first projector and said first twisted nematic liquid crystal rotator; and
5 a second touch up polarizer disposed in said second light emission
externally to said second projector.

7. The system of claim 1 wherein:

said first projector is a polysilicon thin film transistor liquid crystal
display projector that linearly polarizes light emitted from a first red light source, a
10 first green light source and a first blue light source; and

said second projector is a polysilicon thin film transistor liquid crystal
display projector that linearly polarizes light emitted from a second red light source, a
second green light source and a second blue light source.

8. The system of claim 7 further including a second twisted nematic
liquid crystal rotator disposed in said second light emission.

9. The system of claim 8 wherein:

said first twisted nematic liquid crystal rotator is a 0° to 45° twisted
nematic liquid crystal rotator; and

20 said second twisted nematic liquid crystal rotator is a 0° to -45°
twisted nematic liquid crystal rotator.

10. The system of claim 9 wherein:

said first twisted nematic liquid crystal rotator is disposed in said first
light emission externally to said first projector; and

25 said second twisted nematic liquid crystal rotator is disposed in said
second light emission externally to said second projector.

11. The system of claim 1 further including a second twisted nematic liquid crystal rotator disposed in said second light emission.

12. The system of claim 11 wherein:

said first twisted nematic liquid crystal rotator is a 0° to 45° twisted nematic liquid crystal rotator; and

said second twisted nematic liquid crystal rotator is a 0° to -45° twisted nematic liquid crystal rotator.

13. The system of claim 1 wherein:

said first projector linearly polarizes light emitted from a first color channel and a second color channel and orthogonally polarizes light emitted from a third color channel with respect to said light emitted from said first color channel and said second color channel;

said second projector linearly polarizes light emitted from a first color channel and a second color channel and orthogonally polarizes light emitted from a third color channel with respect to said light emitted from said first color channel and said second color channel; and

the third channel of a first image source is interchanged with the third channel of a second image source.

14. The system of claim 13 further including a second twisted nematic liquid crystal rotator disposed in said second light emission.

15. The system of claim 14 wherein:

said first twisted nematic liquid crystal rotator is a 0° to 45° twisted nematic liquid crystal rotator; and

said second twisted nematic liquid crystal rotator is a 0° to -45° twisted nematic liquid crystal rotator.

16. The system of claim 15 wherein:

said first twisted nematic liquid crystal rotator is disposed in said first light emission externally to said first projector; and

5 said second twisted nematic liquid crystal rotator is disposed in said second light emission externally to said second projector.

17. The system of claim 1 wherein:

10 said first projector is a polysilicon thin film transistor liquid crystal display projector that linearly polarizes light emitted from a first red light source and a first blue light source and orthogonally polarizes light emitted from a first green light source with respect to said light emitted from said first red light source and said first blue light source; and

15 said second projector is a polysilicon thin film transistor liquid crystal display projector that linearly polarizes light emitted from a second red light source and a second blue light source and orthogonally polarizes light emitted from a second green light source with respect to said light emitted from said second red light source and said second blue light source; and

the green channel of a first image source is interchanged with the green channel of a second image source.

20 18. The system of claim 17 further including a second twisted nematic liquid crystal rotator disposed in said second light emission.

19. The system of claim 18 wherein:

said first twisted nematic liquid crystal rotator is a 0° to -45° twisted nematic liquid crystal rotator; and

said second twisted nematic liquid crystal rotator is a 0° to -45°
5 twisted nematic liquid crystal rotator.

20. The system of claim 19 wherein:

said first twisted nematic liquid crystal rotator is disposed in said first light emission externally to said first projector; and

said second twisted nematic liquid crystal rotator is disposed in said
10 second light emission externally to said second projector.

21. A system for displaying three-dimensional imagery, the system comprising:

an image source;

15 a first polysilicon thin film transistor liquid crystal display projector connected to said image source wherein said first projector linearly polarizes light emitted from a first red light source and a first blue light source and orthogonally polarizes light emitted from a first green light source with respect to said light emitted from said first red light source and said first blue light source;

20 said first projector having a first light emission;

a second polysilicon thin film transistor liquid crystal display projector connected to said image source wherein said second projector polarizes light emitted from a second red light source and a second blue light source and orthogonally polarizes light emitted from a second green light source with respect to said light
25 emitted from said second red light source and said second blue light source;

said second projector having a second light emission;

the green channel of a first image source is interchanged with the green channel of a second image source;

a first $\frac{1}{2}$ wave retarder disposed in said first light emission; and
30 a second $\frac{1}{2}$ wave retarder disposed in said second light emission.

22. The system of claim 21 wherein:

said first $\frac{1}{2}$ wave retarder is oriented -22.5° with respect to the orientation angle of said first red light source and said first blue light source; and

said second $\frac{1}{2}$ wave retarder is oriented $+22.5^\circ$ with respect to the
5 orientation angle of said second red light source and said second blue light source.

23. The system of claim 21 wherein:

said first $\frac{1}{2}$ wave retarder is disposed in said first light emission externally to said first projector; and

10 said second $\frac{1}{2}$ wave retarder is disposed in said second light emission externally to said second projector.

24. A method for displaying three-dimensional imagery using a projection system having a first projector and a second projector using a first twisted
15 nematic liquid crystal rotator, the method comprising:

determining a polarization angle of light emitted from said first projector;

determining a polarization angle of light emitted from said second projector;

20 altering said polarization angle of light emitted from said first projector to be orthogonal to said polarization angle of light emitted from said second projector; and

wherein said altering said polarization angle of light emitted from said first projector comprises using said first twisted nematic liquid crystal rotator.

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25. The method of claim 24 wherein said first twisted nematic liquid crystal rotator is a 0° to 90° twisted nematic liquid crystal rotator.

26. The method of claim 25 wherein:

said first projector is an amorphous silicon thin film transistor liquid crystal display projector; and

5 said second projector is an amorphous silicon thin film transistor liquid crystal display projector.

27. The method of claim 26 further including:

applying a first touch up polarizer to said first projector; and

10 applying a second touch up polarizer to said second projector.

28. The method of claim 26 wherein said first twisted nematic liquid

crystal rotator is applied externally to said first projector.

29. The method of claim 28 wherein:

15 said applying said first touch up polarizer to said first projector includes applying said first touch up polarizer externally to said first projector; and
said applying said second touch up polarizer to said second projector includes applying said second touch up polarizer externally to said second projector.

30. The method of claim 24 wherein:

20 said first projector is a polysilicon thin film transistor liquid crystal display projector that linearly polarizes light emitted from a first red light source, a first green light source and a first blue light source; and

25 said second projector is a polysilicon thin film transistor liquid crystal display projector that linearly polarizes light emitted from a second red light source, a second green light source and a second blue light source.

31. The method of claim 30 further including:

altering said polarization angle of light emitted from said second projector to be orthogonal to said polarization angle of light emitted from said first projector; and

5 wherein said altering said polarization angle of light emitted from said second projector comprises using a second twisted nematic liquid crystal rotator.

32. The method of claim 31 wherein:

10 said first twisted nematic liquid crystal rotator is a 0° to 45° twisted nematic liquid crystal rotator; and

said second twisted nematic liquid crystal rotator is a 0° to -45° twisted nematic liquid crystal rotator.

33. The method of claim 32 wherein:

15 said first twisted nematic liquid crystal rotator is applied externally to said first projector; and

said second twisted nematic liquid crystal rotator is applied externally to said second projector.

20 34. The method of claim 24 further including:

altering said polarization angle of light emitted from said second projector to be orthogonal to said polarization angle of light emitted from said first projector; and

25 wherein said altering said polarization angle of light emitted from said second projector comprises using a second twisted nematic liquid crystal rotator.

35. The method of claim 34 wherein:

30 said first twisted nematic liquid crystal rotator is a 0° to 45° twisted nematic liquid crystal rotator; and

said second twisted nematic liquid crystal rotator is a 0° to -45° twisted nematic liquid crystal rotator.

36. The method of claim 24 wherein:

said first projector linearly polarizes light emitted from a first color channel and a second color channel and orthogonally polarizes light emitted from a third color channel with respect to said light emitted from said first color channel and said second color channel;

said second projector linearly polarizes light emitted from a first color channel and a second color channel and orthogonally polarizes light emitted from a third color channel with respect to said light emitted from said first color channel and said second color channel; and

the third channel of a first image source is interchanged with the third channel of a second image source.

37. The method of claim 36 a further including altering said

polarization angle of light emitted from said second projector to be orthogonal to said polarization angle of light emitted from said first projector; and

wherein said altering said polarization angle of light emitted from said second projector comprises using a second twisted nematic liquid crystal rotator.

38. The method of claim 37 wherein:

said first twisted nematic liquid crystal rotator is a 0° to 45° twisted nematic liquid crystal rotator;

said second twisted nematic liquid crystal rotator is a 0° - -45° twisted nematic liquid crystal rotator.

39. The method of claim 38 wherein:

said first twisted nematic liquid crystal rotator is applied externally to said first projector; and

said second twisted nematic liquid crystal rotator is applied externally to said second projector.

40. The method of claim 24 wherein:

said first projector is a polysilicon thin film transistor liquid crystal display projector that linearly polarizes light emitted from a first red light source and a first blue light source and orthogonally polarizes light emitted from a first green light source with respect to said light emitted from said first red light source and said first blue light source;

said second projector is a polysilicon thin film transistor liquid crystal display projector that linearly polarizes light emitted from a second red light source and a second blue light source and orthogonally polarizes light emitted from a second green light source with respect to said light emitted from said second red light source and said second blue light source; and

the green channel of a first image source is interchanged with the green channel of a second image source.

41. The method of claim 40 further including altering said polarization angle of light emitted from said second projector to be orthogonal to said polarization angle of light emitted from said first projector; and

wherein said altering said polarization angle of light emitted from said second projector comprises using a second twisted nematic liquid crystal rotator.

42. The method of claim 41 wherein:

said first twisted nematic liquid crystal rotator is a 0° to 45° twisted nematic liquid crystal rotator;

said second twisted nematic liquid crystal rotator is a 0° to -45° twisted nematic liquid crystal rotator.

43. The method of claim 42 wherein:

said first twisted nematic liquid crystal rotator is applied externally to said first projector; and

said second twisted nematic liquid crystal rotator is applied externally to said second projector.

44. A method for displaying three-dimensional imagery using a projection system having a first projector and a second projector and using a first $\frac{1}{2}$ wave retarder and a second $\frac{1}{2}$ wave retarder, the method comprising:

determining a polarization angle of light emitted from said first

5 projector wherein said first projector is a polysilicon thin film transistor liquid crystal display projector that linearly polarizes light emitted from a first red light source and a first blue light source and orthogonally polarizes light emitted from a first green light source with respect to said light emitted from said first red light source and said first blue light source;

10 determining a polarization angle of light emitted from said second projector wherein said second projector is a polysilicon thin film transistor liquid crystal display projector that linearly polarizes light emitted from a second red light source and a second blue light source and orthogonally polarizes light emitted from a second green light source with respect to said light emitted from said second red light source and said second blue light source;

15 interchanging the green channel of a first image source with the green channel of a second image source;

altering said polarization angle of light emitted from said first projector to be orthogonal to said polarization angle of light emitted from said second projector;

20 wherein said altering said polarization angle of light emitted from said first projector comprises using said first $\frac{1}{2}$ wave retarder;

altering said polarization angle of light emitted from said second projector to be orthogonal to said polarization angle of light emitted from said first projector; and

25 wherein said altering said polarization angle of light emitted from said first projector comprises using said second $\frac{1}{2}$ wave retarder.

45. The method of claim 44 wherein:

said first $\frac{1}{2}$ wave retarder is applied in an orientation of -22.5° with respect to the orientation angle of said first red light source and said first blue light source; and

5 said second $\frac{1}{2}$ wave retarder is applied in an orientation of $+22.5^\circ$ with respect to the orientation angle of said second red light source and said second blue light source.

46. The method of claim 44 wherein:

10 said first $\frac{1}{2}$ wave retarder is applied externally to said first projector;
and

said second $\frac{1}{2}$ wave retarder is applied externally to said second projector.